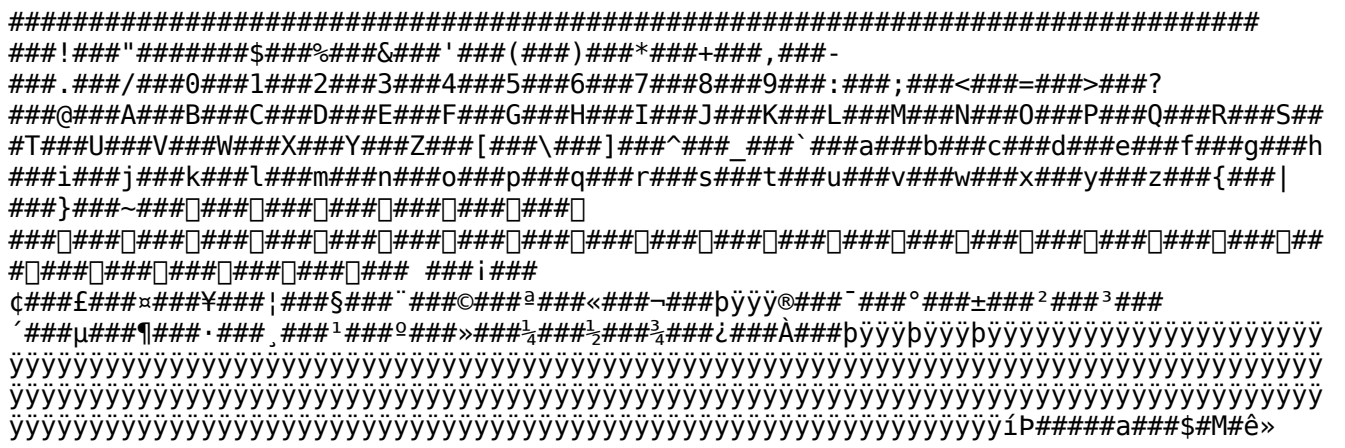

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##############################################################3-3  INITIAL
PLANNING.The TOMA for an acquisition program must be established as early as
possible to develop cost management planning requirements and inputs to the
Statement of Objectives (SOO) and Instructions to Offerers (ITO) sections of the
Request for Proposal (RFP) (chapter 4). 3-3.1  The TOMA will review the Mission
Need Statement (MNS), Program Management Directive (PMD), Operational Concept,
Maintenance Concept, TO MILSPECs, and other tasking documents to develop a
preliminary TO Management Plan (TOMP) and wording for the SOO and ITO. 3-3.1.1
The SOO should specify TO requirements in performance-based terminology.  The ITO
must be explicit enough to allow the contractor to tailor a TMCR for submittal
with the proposal.  Evaluation criteria (RFP section M) must support the SOO and
ITO sections. ##¤À!
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#####################TM Type Requirements for the (System/Equipment)Title or Type
of Manuals#Specification#Will be Prepared(Yes/No)#DeliveryType        #######1.
Inspection TOs#MIL-PRF-5096####    a.  Inspection and Maintenance Requirements (-
6) Manual   #     #           #           ##    b.  Acceptance and Functional Check
Flight (FCF) Procedures (-6CF) Manual    #     #           #           ##    c.
Acceptance and Functional Check Flight         (-6CL) Checklist  #     #
      #           ##    d.  Workcards    #     #           #           ##    e.
Inspection Requirements Cards #     #           #           ##    f.  Flow/Sequence
Charts      #     #           #           ##    g.  Checklists#####          (1)
Maintenance/Operations (Non#Aircrew)     #     #           #           ##
      (2)  Operations (Aircrew)    #     #           #           ##2.  Cargo
Aircraft Loading and Offloading TOs#MIL-PRF-5288#### a.  Manual  #     #
      #           ##    b.  Checklists   #     #           #           ##3.  Weight
and Balance (Aircraft)#MIL-PRF-5920## ## a.  Loading Data Manual #     #
      #           ##    b.  Sample Basic Weight Checklists #     #           #
      ###  ##¤À!¥ 2¦##§##¨##©## During this process, the data products are defined
and described.  MIL-HDBK-59B provides guidance, background information, and
examples for conducting this function.  The output of this function is the
Government Concept of Operations (GCO).
```

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#####TM Delivery Requirements Matrix for Systems/Items                DELIVERY
SCHEDULE##Event (Enter number of days data required prior to event (#In-Process
Review(       Days)#Verification(       Days)#PrepublicationReview
(       Days)#Reproduction Media(       Days)##Enter Office Symbol and Address
      (#Enter Copy Quantities Required    (     (     (     (###################
#######  ##¤À!¥ 2¦##§##¨##©##the AFCPO.  This was a proof of concept that
demonstrated the value of using data in a standard, neutral format that could be
utilized on a wide variety of platforms.
```

###ÿÿ#####ÿ#ÿÿd#########d#############Hello, and welcome to the Digital Data Acquisition Course. This course is a two day presentation that identifies the necessary steps to acquire digital technical orders, or TOs, and digital technical data packages, including engineering drawings. This course was developed by the Air Force CALS Program Office which is solely responsible for its content.We are also providing you with a slide handout for your note taking, and a Digital Data Acquisition Primer to help you acquire digital data long after you graduate from the course. 2

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ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######,###Learning the digital data particulars of product data acquisitionUnderstanding the options available in digital product data acquisitionLearning the format requirements for buying digital data that will be compatible with JCALS and JEDMICSUnderstanding issues associated with fielding digital data

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      Á#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######=###To better understand DoD and Air
Force digital product data policy and infrastructure To determine digital data
types, formats, and delivery/access requirementsTo produce effective RFPs for
acquiring digital product data in JCALS and JEDMICS compatible formatsTo become
acquainted with CALS implementation pointersÿ
```

###We have four goals for you to accomplish during this presentation. First, we want you to learn how to acquire digital product data for DoD's Joint Computer-aided Acquisition and Logistics System, JCALS; and Joint Engineering Data Management Information and Control System, JEDMICS. Second, we will disuss the various aspects of digital data. Third, you will be required to understand DoD's digital data acquisition policy and infrastructure, and finally, we will provide you with some digital data acquisition pointers.

###ÿÿ#####ÿ□#ÿÿd#########d#########B###The first step is to learn DoD□s digital data management approach.

###ÿÿ#####ÿ□#ÿÿd#########d#########□###MIL-HDBK-59B outlines DoD□s digital data acquisition approach as modernizing the information infrastructure, improving business processes, acquiring digital technical data, and doing so within an integrated environment. With respect to the Air Force, the Integrated Weapon System Management, or IWSM, philosophy applies. Digitize processes where applicable and cost effective, yet don□t automate bad processes.

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K#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######i###Joint Computer-aided Acquisition and Logistics Support (JCALS)Provides the backbone for the CALS infostructure Baseline building block of the larger DoD CALS initiative to modernize all aspects of DoD business processesFirst functionality is database management connectivity and technical manualsFuture: acquisition, engineering, and logistics functionse

###ÿÿ#####ÿ□#ÿÿd#########d#############The JCALS system is the backbone of DoD's infrastructure, or more properly termed, infostructure. JCALS is being used to modernize DoD's business processes. JCALS will manage TOs as a first functionality. More functions will be added to the JCALS system in the future.e

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###2##□##ûöýû§    ¢#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######`###Uses existing systems
and data where possibleDevelops and implements an Integrated Weapon System
Database (IWSDB)Implements government and industry interfaces to exchange
technical informationAccommodates interchange of all CALS  standards and
specification formatsDevelops a flexible architecture that can expand  in size,
scope, and functionality
```

###ÿÿ#####ÿ□#ÿÿd#########d#########□###JCALS intends to maximize use of existing systems where possible. JCALS will contain an IWSDB which will connect databases all over the world on a distributed basis. JCALS will also be used to connect government and industry organizations. All of the CALS standards will be able to be used in JCALS. Finally, JCALS is designed in a flexible manner to accommodate future functionality.

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##############ÿ###d#########_##########Integrated Weapon System Data Base (IWSDB)   Data Dictionary/Directory   Virtually Resident Data   Reference Library   Source Dataÿ

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      K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######A###Joint Engineering Data Management Information and Control System (JEDMICS)Standard DoD program for managing approved engineering drawings and related technical dataReplaces or supplements legacy drawing systems with a CALS compatible, DoD standard system Supports JCALS with standard repository management functionality

###ÿÿ#####ÿ□#ÿÿd#########d#########!###JEDMICS is the standard DoD repository for approved engineering drawings. It will be accessed by and connected to JCALS . JEDMICS will replace, or subsume, existing DoD engineering data management and retrieval systems. JEDMICS will provide data base repository functionality for JCALS.ð

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######Ù###Standard repository management Management of intelligent dataGlobal repository data management Incorporation of other engineering data typesAccommodates data formats prepared IAW CALS standards and specificationsi

###ÿÿ#####ÿ□#ÿÿd#########d#########à###JEDMICS will provide standard engineering data repository management. JEDMICS can store intelligent data, access other databases, incorporate all types of engineering data, and accommodate all formats of CALS standard data.

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      ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######©###A business environmentIntegrates
standard DoD information systemsProvides optimal digital data interchangeEnsures
easy access to data regardless of where data residess
```

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######□###Process improvements being
accomplished in design, manufacturing, and supportRe-engineered processes require
modernized infrastructure^
```

###ÿÿ#####ÿ□#ÿÿd#########d#########L###DoD wants to improve its business processes. This has been an issue since the 1980□s Corporate Information Management (CIM) initiative. Process improvement is taking place in design, manufacturing, and logistics support. Those processes, once analyzed, are then re-engineered to get the job done more effectively and efficiently.

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5#ÿÿ####ÿÿ####Tÿn#ÿÿK#########P#2###########Design processes + integrated
databases= Improved information qualityEliminate (duplicative + manual + error-
prone) processes= Reduced acquisition and support costsDigitize data= Reduced
space, weight, storage requirementsElectronic (ordering + contracting)= Improved
cycle times
```

###ÿÿ#####ÿ▯#ÿÿd#########d#########D###Here are a few process improvement equations for your consideration.

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      ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######□###Legacy Air Force TOs to Indexed
Portable Document Format (IPDF) fileJCALS compatibleCOTSSponsored by DUSD (L)
Higher intelligence conversion is encouraged#
```

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#ÿÿK#########P#2#######½###DoD 5000.2-R CALS/Digital Data Para. requires digital
data access or deliveryCALS standards and specifications provide the means for
data interchangeCommon interfacesNeutral file formatsN
```

###ÿÿ#####ÿ□#ÿÿd#########d#########º###Finally, DoD has mandated the acquisition of digital data. The CALS strategy has been in place since 1985 for this purpose. CALS enables digital data acquisition through developing digital data interchange standards for text, graphics, and product data. In addition, along with a modernized infrastructure and improved business processes, digital data acquisition provides the return on investment needed for the infrastructure investment.

###ÿÿ#####ÿ□#ÿÿd#########d#########2###Here is a graphic display of the acquisition policy, guidance, and strategy scaffolding that structures digital data acquisition. Policy and strategy live amidst a digital infrastructure environment. Specific guidance and formats are provided to acquire the right digital data in the appropriate format.

###ÿÿ#####ÿ□#ÿÿd#########d#########É###Since the CALS standards and specifications were developed by both government and industry as performance specifications, they are exempt from requiring waivers in accordance with the Perry Memorandum.»

###ÿÿ#####ÿ□#ÿÿd#########d#########Ð###The ultimate goal of DoD is to have a seamless digital interface with its suppliers, its internal organizations, and other government agencies. Here is the infrastructure that is foreseen in the near future.

###ÿÿ#####ÿ□#ÿÿd#########d#########²###After understanding the direction of DoD it is imperative to plan for the acquisition of digital data. The steps shown herein apply to new acquisitions and system modifications.

###ÿÿ#####ÿ□#ÿÿd#########d#########I###This modeling approach is taken from MIL-STD-59B. Acquisition Planning and Requirements Determination have the directive governors to the north of this functional process box, inputs to the west, outputs to the process are to the east, and mechanisms, or those resource elements required to do the job, are located to the south.Đ

###ÿÿ#####ÿ□#ÿÿd#########d#############These elements are a part of the digital data planning process. Guidance should be consulted, program characteristics analyzed, the Air Force Digital Data Strategy reviewed, the data acquirers and users infrastructure assessed, and an acquisition team built.ÿ

###ÿÿ#####ÿ□#ÿÿd#########d#########R###The following DoD and Air Force documents provide acquisition policy and guidance.

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##ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######û###Part 207.105 requires CALS
implementation in the Acquisition PlanSets framework for effective CALS
implementationHelps ensure harmonization of program plansProvides basis for
funding program infrastructure modernization early in acquisition processa
```

###ÿÿ#####ÿ#ÿÿd#########d#########e###This Defense Federal Acquisition Regulation Guidance sets the framework for digital data acquisition.

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#ÿÿP#########P#2#######Y###Establishes management approach for acquiring defense
systemsDirective for DoD 5000.2-R #
```

###ÿÿ#####ÿ□#ÿÿd#########d#########Z###DoDD 5000.1 promotes implementation of CALS to support new and existing weapons systems.

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###P#########P#2#######5###   Beginning in FY97, all new contracts shall require on-line access to, or delivery of, their programmatic and technical data in digital form, unless analysis shows that life-cycle time or life-cycle costs would be increased by doing so. Preference shall be given to on-line access to contractor developed data through contractor information services rather than data delivery. No on-going contract, including negotiated or priced options, shall be renegotiated solely to require the use of digital data, unless analysis shows that life-cycle costs would be reduced.   Acquisition strategies and plans shall describe the extent of implementation of these requirements in accordance with DFARS 207.105 . Solicitations shall require specific proposals for an integrated data environment to support systems engineering and logistics activities. The PM shall ensure compatibility of data deliverables with existing internal information systems, and augment such systems as required to provide timely data access and distribution consistent with DFARS 227 and 252 . W

###ÿÿ#####ÿ□#ÿÿd#########d#########Ä###5000.2 governs the acquisition process. The Perry Memo states that certain military standards cannot be placed on contract. In view of this, the □intent□ of the military standard is encouraged.

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Data requirements shall be consistent with the planned support concept and represent the minimum essential to effectively support the fielded system. Government requirements for contractor developed support data shall be coordinated with the data requirements of other program functional specialties to minimize data redundancies and inconsistencies.i

##########ÿ□#ÿÿd#########d#########□###Part 9, Section B of 5000.2 applies to Tech Data Packages. In this course, Tech Data Packages will refer to engineering drawings.à

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#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######T###Presents detailed guidance regarding
CALS implementationAssists in producing contractual documents for digital
deliverablesDefines and provides instructions for producing the CALS Government
Concept of Operations (GCO)Defines DoD□s digital data management infrastructure
Defines CALS-related acronyms, definitions,    and points of contact
```

###ÿÿ#####ÿ□#ÿÿd#########d######### ###MIL-HDBK-59B provides specific procedures and direction for acquiring digital data. This handbook is used to develop CALS language for contractual documents.

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#ÿÿK#########P#2#######À###AssumptionsTO Integrity will be maintainedThese are
minimum acquisition requirementsSome users may require paper and digital TOs ATOS
and G022 processes will operate until JCALS is fielded
```

###ÿÿ#####ÿ□#ÿÿd#########d#########Ò###The Air Force Digital Data Strategy was developed by the AFCPO, signed at the SAF/AQK level. It addresses acquisition of TOs and engineering data. The Strategy also addresses Air Force legacy data conversion.

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ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######[###DevelopmentHave TOs tagged in the Standard Generalized Markup Language (SGML) formatUse AF content specific Document Type Definitions (DTDs) Contact AF PDSM Program OfficeRequire a business case if contractor wants to develop TOs in a native formatInteractive Electronic Tech Manuals (IETMs) should be developed IAW DoD performance spec #

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#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######ì###Prior to JCALS implementationContractor
should deliver Indexed Portable Document Format (IPDF) files of SGML-authored TO
For on-line access of TOs use Contractor Integrated Technical Information Service
(CITIS) contract IAW MIL-STD-974
```

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      ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######/###After JCALS Implementation
Contractor should deliver SGML-formatted TOs Contractor should deliver the
appropriate and AF PDSM Program Office approved DTDDelivery of SGML tagged
instances of the TOs should include the IGES, CGM, or RASTER graphics filesCITIS
should allow government access to SGML TOs#
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Contractor data should be accessable for view and distribution in IPDF formatIf
contractor source data is ever delivered to the government, then deliver in SGML
This information should be in the CDRL#
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      {#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######Û###COTS Page Description Language
Cost effective, platform independentIntelligent file format Retains page fidelity
Produces searchable, compact, and easy to distribute filesInterim step to more
intelligent Tech Orders#
```

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#,##########################ÿ□#ÿÿd#########d#########2##□##vöFû"
ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######·###Engineering DataDeliveries should be in a CALS format identified in the current version of MIL-STD-1840 and in a format compatible with the user□s digital engineering data repository#

###ÿÿ#####ÿ#ÿÿd#########d#########í###Engineering data should be acquired both in the contractors native CAD format plus a nuetral IGES file. Native files will be required until the functionality of IGES matures resulting in little to no translation errors in the drawings.#

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      ##ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2###########Technical OrdersIntermediate
step:  Conversion of organic TOs to IPDF files while awaiting maturity of CALS
standards and JCALSHigh change frequency TOs will be SGML-tagged when DTDs become
updated Engineering DataConvert legacy data to CALS standard formats (JEDMICS
formats)
```

##########ÿ□#ÿÿd#########d##############Those TOs determined to be active are going to be converted to Adobe□s Portable Document File (PDF) format and stored until JCALS comes on-line at each TO management sight.For engineering data, legacy data will be converted to a JEDMICS compatible format.

###ÿÿ#####ÿ�#ÿÿd#########d#########
###Things to be considered regarding program characteristics include the program�s acquisition phase, the user�s infrastructure, modifications on existing systems, the operational and acquisition documentation. Finally, build a GCO, which is presented in the next step.

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□#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######~###CALS in strategic planning documents
RFP package requires digital product data delivery/accessData intelligence will
increase throughout acquisition processInfrastructure must be definitized with a
view to using existing/modified information systemsTreat modifications as
acquisitionsOn-line or interactive functionality is desired      by Engineering and
Manufacturing Development
```

###ÿÿ#####ÿ□#ÿÿd#########d#############It is optimal to see CALS in the concept exploration phase. It should be included in the RFP. Modifications should be treated as acquisitions with regard to functions. On-line digital interaction should be accomplished by the Engineering and Manufacturing Development Phase.s

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ß#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######Ä###Identify the data usersIdentify how users will access dataIdentify user hardware, software, telecommunications, and peripheral equipmentRecord in the CALS Government Concept of Operations (GCO)

###ÿÿ#####ÿ□#ÿÿd#########d#########¶###One of the major considerations for data acquisition is understanding the user environment, which involves identifying who the users are, their environment, and what kind of data they need. Determining the user□s infrastructure and recording the user environment and categorizing their required data products is of utmost importance. This information will be captured during the requirements determination phase and recorded in the GCO.

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ú#ÿÿ####ÿÿ####TÿF#ÿÿP#########n#2#######m###□All defense system technical data, including technical orders and engineering data, generated in support of the acquisition life-cycle shall be exchanged in digital form. CALS digital data standards shall be an integral part of the program’s acquisition and logistics data acquisition strategy.   MIL-HDBK-59B provides guidance on structuring a CALS program. Until a commercial equivalent is available and accepted, MIL-STD-1840B and MIL-STD-974 shall be used to provide guidance on technical data delivered to the government and to establish Contractor Integrated Technical Information Services (CITIS) respectively.□e

###ÿÿ#####ÿ□#ÿÿd#########d#########£###This slide depicts sample language to be used in the Operational Requirements Document. Look at the intent of the language and tailor it to your particular needs.

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      Ò#ÿÿ####ÿÿ####TÿF#ÿÿP#########n#2#######□###□The [XYZ] program will take
advantage of existing and emerging automation and integration capabilities to
establish a computer-based environment for creating, managing and storing data
elements once for multiple applications across engineering, design, manufacturing
and logistics functions and processes.  The program will stress concurrent
engineering, digital data delivery and on-line electronic information services in
the solicitation process and resulting contract(s).  Continuous Acquisition and
Life-cycle Support (CALS) standards and specifications for digital technical
information exchange will be cost-effectively implemented.□#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########D###Here is some sample language for the program□s Acquisition Strategy.

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ë#ÿÿ####ÿÿ####TÿF#ÿÿP#########P#2#######µ###The [XYZ] project intends to implement CALS initiatives to reduce life cycle costs, improve product quality, reduce program risk and reduce the schedule of the design, development and production. The technical information required in support of the project will be made accessible through on-line contractor integrated technical information (electronic) services; physical delivery of data required for sustaining support activities will be in accordance with approved MIL-STD-1840 (CALS) format standards and specifications. For contract data requirements not evaluated as cost-effectively delivered to the CALS standards/specifications, delivery will be in mutually agreeable digital formats. The digital formats for all data users and user systems will be determined cooperatively between the government and contractor using the Government Concept of Operations (GCO), developed by the government program office, as the basis for selection. #

###ÿÿ#####ÿ□#ÿÿd#########d#########K###Digital product data acquisition should be woven into the Acquisition Plan.a

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      ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######{###Integrated Master Plan (IMP)
Statement of Objectives (SOO)/Statement of Work (SOW)Responsibilities from
Acquisition Reformÿ
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      ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######□###Replaces the System Engineering
Master PlanDeveloped by the offeror in response to SOO, ITO, and Evaluation
Criteria sections of RFPEvent drivenSource selection material for government
Describes entrance and exit criteria for all eventsTO Reviews, TO Val/Ver, TO
deliveryReferences the Integrated Master ScheduleDetailed Network of program
eventsTraceable to the IMP and program WBSo
```

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ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######H###2-4 pages, clear, and concise Provides basic, top-level objectives of the programReferenced in RFP ITO and Evaluation Criteria SectionsIs coordinated with the program MNS, ORD, SRD, and draft WBSOfferor builds a SOW and CDRL package from SOOReplaced at contract award by the SOWGovt builds the SOW only in exceptional cases

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ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2###########GovernmentProduce RFPProduce SOO, or in exceptional cases SOWAssemble knowledgeable source selection team Offeror/sProduce IMPProduce the SOW, WBS, other related documentsProduce the Proposal including IMP and SOW IAW other RFP criteria (i.e., ITO, Evaluation Criteria, etc.)#

###ÿÿ#####ÿ□#ÿÿd#########d#########m###Digital Data Acquisition Step number three requires a determination of what digital product data is required.#

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#####d#########r##□##Áõ#ø#
Ûúÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########?###Determine Requirements: #Government
Concept of Operations (GCO)
```

###ÿÿ#####ÿ□#ÿÿd#########d#########`###The Requirements Determination process should begin as early in the acquisition planning process as probable. During this process, the data products are defined and described. MIL-HDBK-59B provides guidance, background information, and examples for conducting this function. The output of this function is the Government Concept of Operations (GCO).

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°#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######q###Describes the government□s
infrastructure and CALS implementation strategy to potential offerorsGovernment
produced IAW MIL-HDBK-59B and TO 00-5-3 Is an Attachment to the RFP (Government
Furnished Information)Source data for the Contractor□s ProposalUsed to steer the
CALS effortAllows the government to match digital data formats and media with the
infrastructure#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########¯###The GCO is a document that describes in detail the who, what, when, where, how, and why of data and in this way, the how CALS will be implemented within the government□s infrastructure is described. The GCO is included as an attachment in Section J of the RFP. The contractor responds directly to the GCO via the Contractor□s Approach to CALS (CAC). The GCO will then steer the CALS effort throughout the life cycle of the data.#

###ÿÿ#####ÿ#ÿÿd#########d#########t###Hard CopyPhysical (Magneic Tape, Optical Disk)On-Line (citis)Telecommunications(DISM, OSI, ContractorSpecific)

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ß#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########F###8. Determine the Mechanism and Type of
Media for Data Delivery/Access
```

###ÿÿ#####ÿ□#ÿÿd#########d#########T###There are eight steps involved in the development of the GCO. In completing these steps, a detailed description of the data product will emerge. Step 1 identifies the types of data which will be received. Step 2 identifies who will use that data. Step 3 defines how the users will access and process the data. Step 4 identifies the user□s infrastructure of hardware and software. Step 5 and Step 6 identify types of data deliverables. Once the types are defined, Step 7 is used to determine what standards will apply. Step 8 defines the media on which the data product will be delivered.

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#3##□##□öeûyÿU##############ÿ□###d#########d#########À###MANAGEMENT AND
ADMINISTRATION DATAProgram Schedules/Master ScheduleContractual VehiclesConference
Agendas/MinutesContract Work Breakdown StructureManagement Information System Plan
Configuration Management PlanSystem Engineering Management PlanCALS Implementation
Plan (CALSIP)PRODUCT DESCRIPTION DATATechnical Data PackageSystem Specifications
Engineering Drawings/Associated ListsTest DataECP, RFW, and RFDProduct
Specification
```

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#3##□####eû##5##############ÿ□###d#########d#########¹###ILS/LSA PLANS AND REPORTS
Integrated Logistics Support Plan (ILSP)Logistics Support Analysis Plan (LSAP)
Logistics Support Analysis Record (LSAR)Reliability Assessment ReportsLevel of
Repair Analysis (LORA)Test and Evaluation Master PlanLife-Cycle Cost Estimates
Environmental Impact ReportTechnical Report-Study ServicesQuality Program Plan
PUBLICATIONSTechnical PublicationsTechnical ManualsUser's ManualsOperations
Manuals#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########-###Step 1 defines the data type deliverables. There are four types of data deliverables: Management and Administration Data, Product Description Data, ILS/LSA Plans and Reports, and Publications. This slide shows how many of DoD□s data products are categorized. In this course, we will focus on a few types from three of the categories: for Management and Administration Data we will focus on the CALSIP; for Product Description Data we will focus on Technical Data Packages and Engineering drawings; for Publications, we will focus on Technical Manuals.#

###ÿÿ#####ÿ□#ÿÿd#########d#########Ø###Step 2 defines the users of the data. Users are identified by their activity, location functional responsibility. This information is associated with the information derived from Step 1, the data type deliverables.

###ÿÿ#####ÿ□#ÿÿd#########d#########É###Step 3 identifies how the users will access and process the data (view only, update/maintain, archive, extract, or comment). These access methods are associated with the information defined in Step 2.m

```
###ÿÿ#####ÿ□#ÿÿd#########d#########é###Location A    Program Management      Desk
Top Publisher    S/W Applications 1, 2 and 3  Desk Top Publisher
      Configuration Management      PC    S/W Application 1 Modem Class Desk  Desk
Top Publisher    S/W Applications 1, 2 and 3  LAN MGR 1                    E-mail
      Program Office, Engineering  Desk Top Publisher     S/W Applications 1, 2
and 4 LAN MGR 3Location B    ILS   PC Compatibles Type 1  S/W Application 2 LAN
MGR 3      Workstation Type 1      S/W Application 1 E-mailLocation C
      Participating Matrix Codes   PC Compatibles   S/W Applications 1, 2 and 5
      LAN MGR 3  (Engineering, Cost Analysis  Desk Top Publisher     S/W
Applications 1 and 2   E-mail      Product Assurance)     Workstation Types
      S/W Applications       1, 2 and 3  Service Center   PC Compatibles   S/W
Application 2    LAN MGR 2        Desk Top Publisher     S/W Application 1 Modem
      Plotter, Type 1  S/W Application 1      Work Station     S/W Applications 1
and 2Location D  ILS   PC   S/W Applications 1, 2 and 3  LAN MGR 1
      E-mailLocation E  Training   PC   S/W Applications 2, 5 and 6  E-mail
            Graphics S/W application 2#
```

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#######d#########)###Table E-III XXX Program user capabilities#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########!###Step 4 describes the user□s infrastructure in great detail. It specifies the hardware, software, communications, network and support personnel which will support the data products. It is an inventory of currently available and projected technology for both the government and contractor.p

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□#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######¹###Composed Products:  Document image
fileProcessable Data Files:Text fileGraphics fileCAD filesProduct data files
Integrated data file (Integrated Electronic          Tech Manuals {IETMS})#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########N###Step 5 determines the data formats. A composed product is one in which the document image can either be viewed or printed. A Processable Data File is source code which can be modified. There are five types of processable data files: text file, graphics file, CAD files, product data files, and Integrated data files, i.e., IETMS.

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□#ÿÿ####ÿÿ####UÿF#ÿÿP#########F#2#######W###MIL-STD-1840BInitial Graphics Exchange
Specification (IGES)Standard Generalized Markup Language (SGML)RasterComputer
Graphics Metafile (CGM)Electronic Design Interchange Format (EDIF)Standard
Exchange for Product Data (STEP)Very High Speed Integrated Circuit (VHSIC)
      Hardware Description Language (VHDL)MIL-STD-974 (CITIS)Combination#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########¾###Step 6 determines the standards that apply to the formation, access, and exchange of the data products. MIL-STD-1840B is the CALS standard that directs the use of six specifications for data delivery: IGES, SGML, Raster, CGM, EDIF, and VHSIC. STEP is a related standard in the development phase. CITIS is a CALS standard that applies to the use of an information management service. Data products may have both CITIS and MIL-STD-1840B apply.

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      K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######,###Defines exchange formats for
digital dataStandardizes transfer unit typesSGML document transfer unitProduct
data transfer unitStandardizes delivery format for digital dataRequires reference
in the Statement of Objectives and CDRLProvides instructional approach to the use
of CALS specifications
```

###ÿÿ#####ÿ□#ÿÿd#########d#########ö###MIL-STD-1840B directs the use of CALS specifications and provides an instructional approach to the use of these specifications. This standard also defines how data products are structured for the purpose of exchanging data among various systems.

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      G#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######Ã###MIL-PRF-28000:  Initial Graphics
Exchange Specification (IGES) Neutral file format for representation and transfer
of product definition dataUsed on CAD/CAM/CAE systems and application programsL
```

###ÿÿ#####ÿ□#ÿÿd#########d#########²###IGES is a standard that applies to three dimensional vector graphics for engineering drawings and product data. It is a neutral file, public domain format for the representation and transfer of data that describes parts or an assembly of parts. This data includes the geometry, topology, logical relationships, attributes and features of those parts. It is used in the design, analysis, manufacturing, testing and validation of parts on Computer Aided Design, Computer Aided Manufacturing, and Computer Aided Engineering systems.The AF PDSM Program Office developed an IGES demonstration which involved sending the drawing digitally to 100 contractors across the world. Each contractor built their part from this data. These parts were then assembled at the AF PDSM Program Office. This was a proof of concept that demonstrated the value of using data in a standard, neutral format that could be utilized on a wide variety of platforms.

###ÿÿ#####ÿ□#ÿÿd#########d#########0###There are five IGES graphic classes or application protocols. These are well defined discrete subsets identified by class according to the application for which the digital data is prepared. More application protocols are in the process of being developed, including the Electric Application Protocol.

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      ##ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2###########MIL-PRF-28001:  Standard
Generalized Markup Language (SGML)Instructions for DTD development Includes a
Document Type Definition formatDefines ISO 8879 as baselineSpecifies the format
and structure of page-oriented technical publicationsDocuments based on MIL-M-
38784 (DTD)#
```

###ÿÿ#####ÿ□#ÿÿd#########d#############SGML is a CALS specification that applies to textual information, such as tech manuals and tech orders. Tagging involves incorporating a set of code that identifies and structures the document. □Pieces□ of the document can then be easily changed, manipulated, and used in a variety of applications. DTD stands for Document Type Definition and is the a set of codes for a document type. As with all CALS standards, the SGML specification was developed in conjunction with the International Standards Organization.

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K#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######Ñ###Provides user with:Easy information
cross-referencingQuick and easy information locating Storage space savings since
SGML is least     demanding of all digital formsEasily updated and easy accessible
records n
```

###ÿÿ#####ÿ□#ÿÿd#########d#########□###SGML provides a method for easy cross-referencing and locating information within a document and is the least demanding of all digital forms, with regard to storage space. An example of use: If all references and information regarding a particular hazardous material had to be replaced, through use of a key word, that information could be automatically replaced throughout the whole document.#

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      Â#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######%###MIL-PRF-28002A:  Raster Graphics
Representation in Binary Format    Definition:  Binary coded representation of an
imageType I untiled imageType II untiled and tiled images  (Good for large files)
Used for storage and interchange of scanned engineering drawings, tech orders, and
illustrationsr
```

##########ÿ#ÿÿd#########d#########u###The most effective, economical method for converting paper to digital form is scanning. The result of scanning is a raster image. This is a bit-mapped image formed from a series of pixels. The CALS specification that applies to raster images is MIL-D-280002.There are two types of raster images: untiled and tiled. An untiled image is relatively small and can be compressed into single entity. If a system processes only untiled images, Type 1 of the CALS raster specification would apply. Tiled images apply to large drawings subdivided into sections called tiles. The tiles can be accessed individually within applications, ensuring that only the relevant and necessary information is available at the time of processing. This saves a great deal of working storage space when running applications. Type II applies to systems that process both tiled and untiled images.@

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```

MIL-PRF-28003: Computer Graphics Metafile Specifies device-independent, digitally-encoded vector graphics data; easily previewed, modifiable; Used for storage, retrieval, and interchange of 2-D vector and/or mixed Raster/vector picture description informationSupports color graphicsPreferred TO illustration format#

##########ÿ□#ÿÿd#########d#########S###CGM is a specification used for two-dimensional pictures found in publications such as training manuals and maintenance manuals. This specification applies to vector and vector/raster combination illustrations. This standard defines the elements for picture composition, as well as the requirements for CGM generators and interpreters.t

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##ÿÿ####ÿÿ####TÿF#ÿÿP#########P#2###########Standard Exchange of Product Model Data (ISO 10303)Enables neutral interchange of a product□s   life-cycle data Users can transfer complete product life-cycle data files among heterogeneous, advanced CAD/CAM systemsSTEP will integrate CAD/CAM files containing design data with other information related to specific items or parts (e.g., logistics support and packaging information). This will dramatically change the way enterprises organize, describe, and view data. The impact on data management will be similar to that of object-oriented technology. Data that is currently acquired and stored separately, (e.g., engineering drawings and associated lists, logistics support analysis data, and packaging information) will be created, stored, and accessed from a single integrated database.

##########ÿ□#ÿÿd#########d#########□###STEP is a □work in process□ standard...will eventually replace IGES, adding such information as BOM and configuration management.

#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######ø###On-line access to contractor-maintained and/or owned databases and applicationsFile transfer capability for upload and downloadElectronic mail compatible with the government e-mail system(s)TCP/IP compliantCurrently supports unclassified data

##########ÿ□#ÿÿd#########d#########Ü###The previous specifications that were just presented apply to the delivery of data products to the government. However, if you are going to access contractor owned and/or contractor maintained data via a management information service, the CITIS specification would apply.There are four main components of CITIS: access to data, access to the applications, file transfer, and electronic mail. Access of data would include ad hoc query and running formatted reports. Access to applications involves running the application at the contractor’s site from a remote computer or terminal File transfer involves the upload and download of files. The electronic mail systems or mail servers are used for communication of information between government and contractor. Security is an important consideration for CITIS. Currently, only unclassified data is supported by CITIS.Regardless of the size or complexity of your program, or whether your program is a new start or retrofit, you must determine if CITIS is useful and cost. You must understand the core and tailorable functions for CITIS (refer to section 6 of the CITIS specification). Ultimately, it is DoD’s intention to use CITIS to replace all hardcopy deliverables within DoD.

##########ÿ□#ÿÿd#########d#########S###The last step to for development of the GCO is determining the media on which you will receive the data product. There are three types: physical delivery, on-line delivery, and on-line access. There are three options within physical delivery: magnetic tape, magnetic disk, and optical disk. there are mature standards for the use of magnetic tape, but it may have limited use, depending on your hardware and software requirements. Magnetic disk is widely implemented on PCs throughout government and business, but currently no standards for this media exist. Optical disk used for large volumes of data and or archived data.There are two types of on-line delivery: telecommunications download and on-site delivery. With telecommunications download, files owned by the government are delivered to the government by downloading files from the contractor□s site to the government site. With on-site delivery, data items are stored and maintained at the contractor□s site and viewed by the government.On-line access involves the use of an information management service provided by the contractor.c

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þÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########^###Product Description DataILS/LSA Plans & ReportsPublicationsManagement & Administration Data

###ÿÿ#####ÿ#ÿÿd#########d#########t###Hard CopyPhysical (Magneic Tape, Optical Disk)On-Line (citis)Telecommunications(DISM, OSI, ContractorSpecific)

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öÿú¶ú#üÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########+###1. Identify What Types ofData are Required#

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###3. Identify What The UserWill Do With The Datah
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##ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########H###8. Determine the Mechanism and Type of Media for Data Delivery/Access

###ÿÿ#####ÿ□#ÿÿd#########d#########0###In summary, a GCO is a critical component of the RFP for ensuring that the government receives its data products in the correct version and format -- getting what it is paying for. In completing each of the eight steps involved in GCO development, a detailed description of the data product will emerge.

###ÿÿ#####ÿ□#ÿÿd#########d#########i###The next step, which is outlined in MIL-HDBK-59B, requires production of a cohesive Request For Proposal.d

###ÿÿ#####ÿ□#ÿÿd#########d#############The GCO and other RFP elements are inputs to the Solicitation and Source Selection, or contractor selction, process. The output of this function will be the CALS contractual elements, which will be placed in the appropriate section of the RFP as will be soon explained. h

###ÿÿ#####ÿ□#ÿÿd#########d#########¨###The Solicitation and Source Selection Process is broken into three separate sub-processes: Solicitation Process, Contractor Proposal Process, and the Selection Process.

###ÿÿ#####ÿ□#ÿÿd#########d#########¿###First, we will examine the Solicitation Process. The output of this function is an updated GCO, an RFP, and source selection evaluation criteria on which contractor proposals will be judged.

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^#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######□###RFP Source MaterialGCOCALS
Implementation StrategyAcquisition StrategyRequires acquisition team participation
CohesivenessIntegrated approach
```

###ÿÿ#####ÿ□#ÿÿd#########d#########Ø###The GCO, CALS Implementation Strategy, and Acquisition Strategy are source materials for constructing the RFP. The RFP must be cohesive and integrated in that all sections must appropriately refererence one another.

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      ##ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######□###TOs require separate CLIN and
sub-CLINsWith or without an attached TM-86-01CITIS should be separate CLINPermits
cost/benefit analysisPermits visibility of CITIS scheduleCITIS CLIN should contain
following elements:Service establishment and telecommunicationsAccess/connect time
and securityContractor infrastructure and maintenanceTechnical Data Packages are
priced with work breakdown structure itemn
```

###ÿÿ#####ÿ□#ÿÿd#########d#########Ø###RFP Section B is the Contract Line Item Number (CLIN) section. TOs and CITIS capabilities each have their own CLIN. Technical Data Packages, or TDPs, are priced in the normal CLIN work breakdown structure format.

####ÿ□#ÿÿd#########d#####H###2##□##y÷Aü%
æ#ÿÿ####ÿÿ####TÿF#ÿÿP#########P#2###########□Technical Orders for the XYZ program are to be prepared in accordance with Exhibit A.□Exhibit A: TMCR   Flight Manual Deliverables   O-level Maintenance Deliverables
Depot TOs   TO Management Deliverables

```
####ÿ□#ÿÿd#########d#########2##□##Sõ#ük
«#############T#F###P#########P#2#######,###ITEM NO. SUPPLIES/SERVICES   QTY
UNIT PRICE   AMOUNT0002     Tech. Data Package  1 EA      $XXXXX*    $XXXXX*
(TDP) for CLIN 0001         in accordance with         Exhibit A.*Provided by
offerors responding to a solicitation; final contract amounts inserted by
contracting officer.
```

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ë#ÿÿ####ÿÿ####Uÿu#ÿÿA#########P#2####### ###A tailored and revised TM-86-01 Contains completed Section 2 (Manuals required)Contains completed Section 3, Specification Interface Requirements (formerly Specification Application Record (SAR)Only joint-service TMSS will be included in the revised TM-86-01 SAR#

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/#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######_###Digital Product Data DeliveryAcquiring
Tech Orders (TOs)Acquiring Engineering Drawings CITIS

###ÿÿ#####ÿ□#ÿÿd#########d#########ú###The most important RFP section is Section C, the Statement of Objectives (Statement of Objectives). We will describe how to construct a Statement of Objectives that requires a contractor to either deliver or enable government access to digital data.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######±###Knowledgeable TO Management Agency
(TOMA)Trained TO acquisition teamKnowledge of program□s TO requirementsMIL-HDBK-
59B Decision TemplateA separate TO CLIN and exhibit (TMCR)#
```

###ÿÿ#####ÿ#ÿÿd#########d#########P###Our first example will be to develop a Statement of Objectives requiring delivery of digital TOs. You will need an experienced TOMA, a trained acquisition team (you may call upon the Air Force CALS Program Office), knowledge of the program’s characteristics, a copy of MIL-HDBK-59B, and a separate CLIN for TO acquisition requirements.

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»#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2##########A Statement of Objectives or, in limited cases, a Statement of Work taskingSubmit the GCO as GFI (See TO 00-5-3 Chap 4)Instructions to Offeror (ITO) language asking for priced options (See TO 00-5-3 Appendix E)A well-tailored Technical Manual Contract Requirements (TMCR) - TM-86-01ESee TO 00-5-3 Appendix FConsultation with AF PDSM Program OfficeWhat could the contractor propose to you????m

###ÿÿ#####ÿ□#ÿÿd#########d#########¥###To acquire TOs, a Statement of Objectives tasking is required. In addition, you should prepare some instructions to the offerors. These instructions should ask for priced options to meet the Statement of Objectives requirements. A well tailored Technical Manual Contract Requirements (TMCR) Document. You should request that the Air Force CALS Program Office assist you in development of your Statement of Objectives.#

###ÿÿ#####ÿ□#ÿÿd#########d#########~###MIL-HDB-59B□s TO acquisition decision template has a list of decision options available to determine the digital data characteristics suited for your program. Decision one identifies composed and processable document file options. Composed documents cannot be easily modified and could be direct image copy format. Processable files have intelligence and can be easily modified.

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      ##ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######l###Composed TOsType A = Direct
image copyType B = Type A delivered digitallyRaster productsPage Description
Language (PDL)Word processorProcessable TOsType B+  = i.e., tagged data (IGES and
SGML)Type C = task oriented tagging, input to database for IETM stored in a
relational databaseProgram can acquire interim dual deliverable types until JCALS
is on-line
```

###ÿÿ#####ÿ□#ÿÿd#########d#############Each category of delivery type options has different types of data. Types A and B are listed under composed data types. Type B+ and C are listed under processable data types. Until JCALS is on-line, programs can consider strategies of buying both types.

```
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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######c###Offers least flexibilityNon-changeable
without further processingCan be archived, viewed, printed#
```

```
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¤#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######b###RobustCan be updated Can be
transformed to many data typesProvides interactive, WORM capability
```

###ÿÿ#####ÿ□#ÿÿd#########d#########□###Here are the characteristics of processable TOs. Notice that this type of TO lends itself to Write Once, Read Many (WORM) times functionality.#

###ÿÿ#####ÿ□#ÿÿd#########d#########«###Decision number two reveals the option of a document image file for composed TOs. The processable approach offers the options of text, graphics, and interactive TO files.E

```
####ÿ□#ÿÿd#########d#####T###2##□##Oø!ûû
Æ#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2###########Document Image fileRaster filePage
Description Language fileAcquire as interim solution onlyAccommodates legacy data
conversionText FileSGML-taggedCommercial word processingGraphics FileIntegrated
Data FileText and Graphics in compound architecture
```

###ÿÿ#####ÿ□#ÿÿd#########d#########6###Each file type has specific characteristics and forms.

###ÿÿ#####ÿ□#ÿÿd#########d#########Ú###TO acquisition decision three corrolates specifications with each of the composed and processable file options. The IETM specifications are threefold and must be applied together for a thorough interactive TO program.

```
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K#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######¯###Document Image FileMIL-P-38790 (Direct
image copy)MIL-PRF-28002 (Raster)Commercial (i.e., PDL and PDF) Text FileMIL-PRF-
28001 (SGML), DTD, FOSICommercial word processing
```

###ÿÿ#####ÿ□#ÿÿd#########d#########X###The document image file has several options to offer: a direct image copy according to MIL-P-38790 format, a raster format, and commercial formats such as a Page Description Language (PDL) and private applications such as Adobe Acrobat Portable Document Format (PDF).Text files can come in either an SGML or commercial word processing format.

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□#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######.###Set of rules governing how TO data is taggedAppended to each MILSPEC for each TO typeConform to each TO type (i.e., flight manual)AF PDSM Program Office is OPR for AF DTDsUsed to produce a tagged instance of the TODTD structure appended to MIL-PRF-28001 (SGML)59+ AF DTDs are currently available

###ÿÿ#####ÿ□#ÿÿd#########d#########□###A Document Type Definition (DTD) is a set of rules governing the structure of a document. A DTD is attached to every content specific TO specification such as a flight manual. The Air Force CALS office produces DTDs to be used as Government Furnished Information. A DTD and text equals a tagged instance. MIL-M-28001 defines how to build a DTD. To date the Air Force CALS office has produced over 59 DTDs.

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¡#ÿÿ####ÿÿ####TÿF#ÿÿP#########K#(#######¥###<doc service=�NAVY� docid=�S9086-RQ-
STM-010/CH-510� docstat=�revision�<front><I--   TITLE PAGE--><idinfo><tmidno>
<docno>S9086-RQ-STM-010/CH-510<revnum>FIRST REVISION<doctype>NAVAL SHIPS�
TECHNICAL MANUAL<prtitle><subject>S9086-RQ-STM-010 <brk type=�line�>HEATING,
VENTILATING, AND AIR <brk type=�line�>CONDITIONING SYSTEMS <brk type=�line�>FOR
SURFACE SHIPS</prtitle><seal> <graphic boardno=�D001R034� reprodep=�100�
reprowid=�100�><discl><distrib type=�B�> DISTRIBUTION AUTHORIZED TO U.S.
GOVERNMENT AGENCIES ONLY; ADMINISTRATIVE/OPERATIONAL USE; 28 FEBRUARY 1990. OTHER
REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO THE NAVAL SEA SYSTEMS COMMAND (SEA-
09B2).a

###ÿÿ#####ÿ□#ÿÿd#########d#########ª###The red text is the narrative. The bracketed words are SGML codes. Bother together would create a digital tagged instance of a TO much as a user is used to seeing them.

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Ç#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######3###Translates tagged instance into desired outputSupports a particular DTD for a particular TO typeContains formatting information (i.e., point size)Appended to governing MILSPECUsed with DTD to produce desired outputProvided to the contractor as GFICan be downloaded from AF PDSM Program Office WWW page#

###ÿÿ#####ÿ□#ÿÿd#########d#########Ì###The Formatted Output Specification Instance (FOSI {Faw-see}) provides the specific text formatting information to the tagged instance. The DTD and FOSI together produce a usable digital instance of a TO.

```
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#,##########################ÿ□#ÿÿd#########d#########2##□##Rù(üþ
K#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2##########Graphics FileMIL-PRF-28003 (CGM)
Preferred option for TOsSmaller file sizeEasily edited and maintainedMIL-PRF-28000
(IGES)Text delivered in ASCIIMIL-PRF-28002 (Raster)#
```

###ÿÿ#####ÿ#ÿÿd#########d#########ï###CGM graphics for TOs represent the highest quality and most processable format. Graphics can also be taken directly from the CAD station through an IGES translator. Raster is also a choice; however, it is the least intelligent format.. #

```
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##P#########P#2#######R###MIL-PRF-87268A (Type C data)Data is tagged according to
task function vs MILSPEC formatIETMs and IETMs presentation software development
Text, tables, graphics, dialogs, and links componentsCommon user interface
functionsElectronic Display System (EDS)/IETMs interrelationshipMIL-PRF-87269A
Revisable database requirements for IETMs
```

###ÿÿ#####ÿ□#ÿÿd#########d#############The □state of the art□ processable TO format is the Integrated data file. This format is used to produce interactive TOs. These TOs are tagged based on the maintenance function to which they refer. Interactive Electronic Technical Manuals (IETMs) enable a linking of text, tables, graphics according to function versus a TO book. The TOs are viewed through a user interface portable maintenance aid usually hand held by the maintenance technician. This electronic display sytem interacts with the IETMs database.#

```
###############
#,##########################ÿ#ÿÿd#########d#####]###2####LøJüø
ï#############T#F###P#########P#2#######Ï###Entire IETM databaseNumbered and
delivered as a single TOSystem that authors and generates an IETM  database
instanceSystem that reads and displays an IETM     database instanceCombinations
of the above#
```

###ÿÿ#####ÿ#ÿÿd#########d#########&###The acquirer of IETM data receives the entire IETM database on disk is required. The database is numbered as a single TO. A system is required, normally a portable maintenance aid, that generates and displays the IETM.   IETM deliverable requirements are, of course, tailored by the acquirer.

###ÿÿ#####ÿ□#ÿÿd#########d#########□###Delivery Mode option four depicts the various digital data delivery options such as MIL-STD-1840 format, CITIS, or a contractor specific format.

```
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:#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######Ó###MIL-STD-1840Less expensive than
telecommunications investmentMag tape, floppy and optical diskContractor specific
TelecommunicationsLarge amounts of data can make this option cost prohibitive
Security issues#
```

###ÿÿ#####ÿ□#ÿÿd#########d#############Data can be delivered in MIL-STD-1840 format, which includes contractor specific format as long as it meets the intent of 1840. In addition data can be provided via telecommunications; however, there are disadvantages to this option that are being resolved.

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□#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######ê###TM-86-01 identifies TO Program Requirements and the Specification Interface RequirementsReferenced in DoD 5010.12-M and TO 00-5-3Must be tailored by the contractor IAW TO risk factors in the SOO and attached GCO requirementsNote that Instructions To Offeror may promote contractor preparation of TMCR (TO 00-5-3 Appendix F.)Cross-referenced with CDRL requiring TO deliveryCDRL and TMCR are an exhibit to RFPCDRL and TMCR package have their own CLINDraft TM-86-01E is being finalized

###ÿÿ#####ÿ□#ÿÿd#########d#########□###The most important contractual document for acquiring digital TOs is the Technical Manual Requirements Document (TMCR). The TMCR, also referred to as TM-86-01, describes digital TO Statement of Objectives, delivery, and tailoring instructions. It is a mandatory document per DoD 5010.12-M. It contains three sections which must be tailored.   The tailoring instructions are in the front section of the TMCR.   It is attached to the CDRL that requires TO deliveries. The TMCR is annotated in the DID authority block of the CDRL. The TMCR and the CDRL package are an exhibit to the RFP. The TMCR also has its own CLIN in RFP section B.r

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úý#############ÿ□#ÿÿd#########d#########¸###STANDARDIZATION INTERFACE RECORD FOR
      MIL-STD-1840B
3 November 1992Automated Interchange of Technical Information

#¸#########¸#################¸#########4####ÿ□#ÿÿd#########d#######T####ÿ□#ÿÿd####
#####d############ÿ□#ÿÿd#########d#######/####ÿ□#ÿÿd#########d#########9#Ðÿ## ökÿ□
##ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###4.2   The transfer unit shall be encoded in an appropriate format for the type of transfer unitspecified below.
4.2.2 Page Description Language (PDL) transfer units will only be used to update volatile(changeable) legacy data using a commercial word processing format. Note: The preferred AFmethod is Adobe Portable Document Format (PDF) file indexed in accordance with the AF Digital DataStrategy.

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ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######ø###To provide digital technical orders that will support the XYZ system throughout its useful life-cycle and that will be formatted to the Joint Computer-aided Acquisition and Logistics Support System (JCALS) TO Management System.TO-00-5-3 Par. 3-3.1.1 The SOO should specify TO objectives in performance-based terminology. Evaluation criteria (RFP section M) must support the SOO and ITO sections. The ITO must be explicit enough to allow the contractor to tailor a TMCR for submittal with the proposal.

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#ÿÿd#########d#########c###Government-produced RFP packageor a contractor response
as a result of the governmentSOO and ITO#

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```

È#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######□###□The contractor shall develop technical orders to support the XYZ program in accordance with the requirements, schedules, and tables in the Technical Manual Contract Requirements document, TM-86-01/T (Exhibit).□ (CDRL #1, CDRL #2)Required TO Management DataTO Publication Plan, TO Validation Plan, Explosive Ordnance Disposal ProceduresCDRLs must be tailored to require digital delivery

###ÿÿ#####ÿ□#ÿÿd#########d#########p###Here is a sample digital TO Statement of Objectives input along with an outline of additional publications data.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######[###One CDRL for all program TOs Multiple
sub-clinsBlock 4: TMCR-86-01 is the authority (DID)#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########8###As for CDRLs, you may have one CDRL for all program TOs.

```
###ÿÿ#####ÿ□#ÿÿd#########d#########□###Ref Blks 12 and 13:  Delivery schedule is
outlined in attached TM-86-01.Ref Blk 14:  See attached TM-86-01 for distribution
requirements.#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########F###Notice the block four DID Authority in block 4 of this CDRL example.

#*#########*###
#'###########*#########*####ÿ□#ÿÿd#########K#########2##□##Ñøeûþ

#ÿÿ####ÿÿ####Uÿn#ÿÿK#########7#2#######□###Described in MIL-T-31000 and in ASME Y14.100MMIL-T-31000 retained and is being revised IAW MIL-STD-961, Information on Spec WritingNew MIL-T-31000 due out on 30 Sep 1996 Product□s technical descriptionDesign, manufacturing, quality assurance, and packaging characteristics TDP elementsDrawings and associated listsIllustrated text documentsProduct data Software documentation

###ÿÿ#####ÿ□#ÿÿd#########d##########>###Acquiring technical data packages (TDPs), which includes engineering drawings, requires an understanding of ASME Y14.24M and familiarity with the former DoD standard MIL-T-31000 (DoD standard familiarity is optional). TDPs describe the characteristics of the product. As you can see, the TDP elements are broken out.

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      I#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######
```
###Program office and Engineering Data Management Office (EDMO) participation
Determination of engineering data requirementsDigitization of commercial manuals
Discussion of CALS requirements at Engineering Data Guidance Conference and
Integrated Product Team Meetings

###ÿÿ#####ÿ□#ÿÿd#########d#########ù###Acquiring TDPs requires much work on the part of the EDMO. More information on the EDMO can be obtained from the Digital Data Acquisition Primer, which is distributed in this course. Engineering data requirements must be determined. Digital commercial manuals must always be considered as a viable option in engineering data acquisition. As with TOs, CALS requirements, or the GCO narrative, should be discussed at the engineering data guidance conference and any TDP Integrated Product Team meetings.l

###ÿÿ#####ÿ#ÿÿd#########d#########o###Finally, Delivery Mode options include MIL-STD-1840 format, on-line CITIS capability, or a combination of both.T

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»#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######_###MIL-T-31000ASME Y14.100M series:
General Specs for TDPsMIL-STD-100E (101.11, 16; 704.1.1) MIL-HDBK-288, Review and
Acceptance of Engineering Drawing PracticesMIL-STD-1840 Tailor Sections 4 and 5
Consult users requirements, infrastructure, and intended data use information in
the GCOConsult Data Item Manager regarding acquisition reform changesP
```

###ÿÿ#####ÿ□#ÿÿd#########d#########<###Once the template has been considered in light of program requirements the following standards can be consulted and tailored for the purpose of building the Statement of Objectives. The ultimate digital data users and the program□s data manager/s should be involved in the Statement of Objectives production phase.

#7v##########¾#####9#□ú##°õ#ú##ð#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########U###MINUTES OF THE DEFENSE STANDARDS IMPROVEMENT COUNCIL MEETING - 10 JUL 96ANNOUNCEMENTS- The Council chair provided an update on the progress or the Specifications and Standards Reform memorandum. Either Dr. Kaminski or Mr.Longuemare will be signing a general exhortative acquisition reform memo which will have as an attachment specific guidance on specification reform.DOCUMENT UPDATES- MIL-STD-100 - The Council agreed to retain this document as a Standard Practice. This standard will be revised to provide pointers to every feasible commercial practice and will also contain necessary military unique information. The revised standard will be given to the DepSos for review and approval and only forwarded to the DSIC if a major problem occurs. DoD will also adopt the ASME Y14.100 standard and use it when it makes sense to do so.#

```
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      ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######·###Engineering DataDeliveries
should be in a CALS format identified in the current version of MIL-STD-1840 and
in a format compatible with the user□s digital engineering data repositoryu
```

###ÿÿ#####ÿ□#ÿÿd#########d#########í###Engineering data should be acquired both in the contractor□s native CAD format plus a nuetral IGES file. Native files will be required until the functionality of IGES matures resulting in little to no translation errors in the drawings.#

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¨#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######Ë###Engineering data requirement must be stated in Statement of ObjectivesMIL-T-31000, ASME Y14.100 (and others), and MIL-STD-1840 must be tailored and cited To direct the contractor to develop digital drawingsTo identify digital data interchange standards and specifications for particular data types To identify data delivery requirementStatement of Objectives prepared to ensure engineering drawings are procured that will run on either EDCARS, or JEDMICSu

###ÿÿ#####ÿ□#ÿÿd#########d#########□###When building the Statement of Objectives, it must be remembered that engineering data requirements must be specifically called out. This requires a tailoring of the MIL-STDs shown on the screen. A CDRL must be prepared that calls out DD Form 2554-1. This DD Form functions as the TDP production and delivery instructions much like the TMCR identifies the TO production and delivery instructions.#

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{#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######á###Options:EDCARS: **See your local
EDMO & EDCARS Rep** Must order 1/2□□, 9-track, MIL-STD-1840A format with modified
header data in data fileMIL-PRF-28002B (Group 4, type 1 {untiled}) Each file
□Source document identifier□ record must correspond with holerith data for
corresponding image fileDD Form 2554-1 data element items can be found in Back-up
sheet for DD Form 2554-1If an ALC Interim Repository: MIL-STD-1840B;
IGES, Vector, Raster, CGM; and a Native CAD file. Q

#!#########!###
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Ô#ÿÿ####ÿÿ####TÿF#ÿÿP#########x#2#######N###XX Engineering Data: The contractor shall develop/produce/maintain a Technical Data Package (TDP) that accurately depicts the final product. A TDP is defined as a technical description of item(s) adequate for supporting an acquisition strategy, production, engineering and logistics support. The drawings provided as part of the TDP shall reflect the level of design maturity that the item has attained. Drawings and associated lists shall provide the necessary design, engineering, manufacturing, and quality assurance requirements information necessary to enable the procurement or manufacture of an interchangeable item that duplicates the physical and performance characteristics of the original product, without additional design engineering effort or recourse to the original design activity. The contractor shall produce and maintain documentation for all electrical assemblies/subassemblies in such a manner to ensure their functional integration without recourse to Special Test Equipment (STE) or installation of the assemblies or subassemblies into a next higher assembly. For the contractor□s information only, the contractor may find it useful to incorporate the concepts of MIL-HDBK-288 into the preparation of the TDP. MIL-HDBK-288 refers to Engineering Drawing Packages (EDP); this term shall be considered synonymous with TDP. This TDP is for logistic support , including competitive reprocurement; and shall be free of limited rights/proprietary markings of any kind (except for government approved and contract specified documentation). [DI-DRPR-81000/T, DI-DRPR-81002/T , DD Form 2554-1]

###ÿÿ#####ÿ□#ÿÿd#########d#########^###Here is some sample Statement of Objectives language for digital engineering data acquisition.

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```

ENGINEERING DRAWING PRACTICES: The contractor shall use the practices described in MIL-STD-130G, MIL-STD-804C, MIL-HDBK-288B, MIL-STD-12, IPC-D-275, ASME Y14.24M, ASME Y14.34M, ANSI Y14.1, ANSI Y14.2M, ANSI Y14.4M, ANSI Y14.6, ANSI Y14.7.1, ANSI Y14.7.2, ASME Y14.8M, ANSI Y14.13M, ANSI Y14.15, ANSI Y14.15a, ANSI Y14.15b-1973, ANSI Y14.17, AMSE Y14.18, ANSI Y14.5M, ANSI Y14.3, ANSI Y14.36, ANSI Y32.10, ASTM E380, ANSI/AWS A2.4, ANSI/AWS A3.0, ANSI/IEEE Std 91, ANSI/IEEE Std 200, ANSI/IEEE Std 260, ANSI/IIEEE Std 280, IEEE Std 315, ANSI/IEEE Std 991, ANSI/IPC-D-350, ANSI/IPC-T-50, and SAE AS1290 first, and then best commercial practices. The contractor may find it useful to use MIL-STD-100E for guidance. [DI-DRPR-81000/T, DI-DRPR-81002/T]

```
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      ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######□###Instructions for data file
header information to accommodate EDCARSDocument declarationData FilesAF PDSM
Program Office is developing a standard backup sheet for 1840A compatability to
EDCARSGuidelines developed; reviewed by ALCs; ready for testingALC provides unique
data file record information for specific contracts as an attachment to contract
Contact your EDMOContact your Contracting organizationt
```

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ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2###########Use DD Form 2554-1 Back-up Sheet guidelines to provide data element instructions to the contractorThis information could be annotated in the CDRL in lieu of a formal DD Form 2554-1Tailor it to meet your local repository requirementsFor help contact:Your EDMOAF PDSM Program Office-

###ÿÿ#####ÿ□#ÿÿd#########d#########□###This is a sample CDRL calling out the appropriate DID authority in block 4 and the DD Form 2554-1 instructions in block 16, Remarks.

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###ÿÿ#####ÿ□#ÿÿd#########d#########S###Here is a DD Form 2554-1 attachment
describing requirements for CALS deliverables. #
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###ÿÿ#####ÿ□#ÿÿd#########d#########O###This portion of the 2554-1 identifies to whom the digital deliverables will go.i

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##ÿ□#ÿÿd#########d#########H###CDRL #1423ED Section ParaReference2554-1 referenced
in remarks block
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□úÿÿ$###ÿÿ#####ÿ□#ÿÿd#########d#########;###Contractor Integrated Technical
Information Service (CITIS)#
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>#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######3###On-line, remote access to Data Accession list/CDRL should be used to access dataGCO is most important resource Requires tailoring of MIL-STD-974Core CITIS functions (Paragraph 4)Optional functions (Paragraph 5)SOO must identify any additional CITIS requirementsRequire CITIS description in the RFP ITO

###ÿÿ#####ÿ□#ÿÿd#########d#########□###As previously presented, CITIS is an on-line, remote access capability whereby data listed on the CDRL is accessed where the data resides--normally at the contractor (the producers) facility. The GCO is the source material for identifying CITIS requirements and users. CITIS implementation requires tailoring of MIL-STD-974. The CITIS capability can be described in the Instructions To the Offeror.#

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Ã#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######p###Core functional requirements of information integration, storage, exchange, and/or on-line sharing of data Government CITIS sitesAvailability of CITIS services during the working day Response/Access to CDRL requirementsCITIS period of performanceContractor□s requirement to provide leased lines for handling user session interactionEstablish secure communications

###ÿÿ#####ÿ□#ÿÿd#########d#########x###You may desire to add additional CITIS requirements and consider some of these items for your particular implementation.

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}#ÿÿ####ÿÿ####TÿF#ÿÿP#########d#2#######□###□The contractor shall develop a CITIS program IAW MIL-STD-974. The XYZ CITIS program shall be composed of procedures, processes, specifications and software applications for the integration, storage, exchange, and/or on-line sharing of data with the government. The contractor shall ensure that core CITIS functions IAW MIL-STD-974 para 4.7 are implemented. The contractor shall integrate all information management by establishing a link among logistics, design, manufacturing, and support databases and processes. The contractor will also provide timely CITIS maintenance support to the government.□Additional requirements may be levied hereafter

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□#############T#F###P#########d#2#######Á###Sets the pace for CALS implementation
Establishes a meeting of the minds between contractor and governmentCoordinate
digital data discussions with TO and engineering data guidance conferencesh
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###ÿÿ#####ÿ□#ÿÿd#########d#########Ö###Discussing CALS contractual issues at the functional guidance conferences, for example the TO or engineering data guidance conferences, allows a meeting of the minds between government and contractor to take place.

###ÿÿ#####ÿ□#ÿÿd#########d#########\###RFP Section E documents the acceptance criteria for both digital data deliveries and access.

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¿#ÿÿ####ÿÿ####Uÿu#ÿÿA#########P#2#######ï###Physical media acceptanceData exchange format acceptanceRequires automated toolsSGML, CGM, Vector verificationSGML-S Parser (Public Domain tool) availableMIL-STD-1840 format acceptanceRequires automated toolsIGES format verification#

###ÿÿ#####ÿ□#ÿÿd#########d#########¦###As part of the delivery acceptance criteria, the physical media must be inspected, the data exchange formats evaluated, and the data formats tested for acceptability.

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9#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######=###Air Force CALS Test SupportCALS standard interoperability testingIGES and Interchange specification support1840 Tape Toolvalidg4 for Raster Group 4 filesxrasterb browser (viewer)Other COTS testing packages Interoperability testing provides indication for EDCARS compliance Formal content and format acceptance#

###ÿÿ#####ÿ□#ÿÿd#########d#########|###The Air Force CALS Office is prepared to help Air Force product and support centers with acceptance testing of digital data.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######æ###Build a CITIS checklist based on Statement of Objectives specsVerify service availability, maintenance response regarding core and additional functionsVerify capability against Statement of Objectives, MIL-STD-974, and checklist

###ÿÿ#####ÿ□#ÿÿd#########d#########x###CITIS has its peculiar acceptance criteria.
A checklist can be built using the Statement of Objectives and MIL-STD-974.

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<#ÿÿ####ÿÿ####Tÿn#ÿÿK#########P#2#######0###Conducting CITIS TestAuthorized user accesses test data from customer siteEnsure that core and additional CITIS functions operate properlyRerun testing if any major maintenance occursSuccess DefinedWhen contractually required, product or test data is successfully downloaded to the customer□s system

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######p###Consider a technology refreshment
clause hereUse incentive mechanisms for technology refreshment (i.e., VECPs)

###ÿÿ#####ÿ□#ÿÿd#########d#########{###Special contract requirements are to be placed in Section H. Technology refreshment clauses are appropriately placed here.

###ÿÿ#####ÿ□#ÿÿd#########d#########n###RFP Section J is the attachment section. Here you will place the CDRL package, TMCR, GCO, and DD Form 2554-1.

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Ûúÿÿ,###ÿÿ#####ÿ#ÿÿd#########d#########,###RFP Section L#Instructions to Offerors
(ITO)
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ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######¯###Instruct potential bidders to prepare a Contractors Approach to CALS (CAC)Offers potential bidders an opportunity to propose alternative digital data access/delivery strategies Eventually, plans will be provided in proposalTO-00-5-3 Par 3-3.1.1 The ITO must be explicit enough to allow the contractor to tailor a TMCR for submittal with the proposal. Evaluation criteria (RFP section M) must support the SOO and ITO sections. t

##########ÿ□#ÿÿd#########d##########¦###MIL-HDBK-59B par 4.2.6 outlines instructions for ITO development. Section L should instruct potential bidders to develop a Contractor's Approach to CALS (CAC).

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ë############T#F###P#########P#2#######'###Instructions, Conditions, and Notices to Offerors or QuotersAir Force Technical Manual Contract RequirementsPART A: MANAGEMENT AND ADMINISTRATION1. The offeror shall propose a solution to satisfy Air Force supportability objectives (SOO) with technical manuals for the system. The offeror shall describe the selection and application of required specifications (either commercial or military performance (MIL-PRF)), including associated Document Type Definitions (DTDs) and Formatted Output Specification Instances (FOSIs). In the event the offeror shall propose a non-standard DTDs/FOSIs, the offeror shall describe how this process will be accomplished, including approval to use non-standard DTDs/FOSIs., prior to development. For electronic TO development and delivery, the offeror shall identify the data format and interface requirements, and describe any interrelationship between the TO data and the weapon system/equipment database. The offeror shall describe the interface of TO data delivered under this contract to existing government management information systems, e.g., Joint Computer Acquisition and Logistics Support (JCALS). If applicable, the offeror shall include, in the IMP, Contractor Integrated Technical Information Service (CITIS) processes (see MIL-STD-974) to support these systems.

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      K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######¼###Instruct contractor to review the GCOEncourage contractor to propose alternative approaches to meeting the digital data delivery requirementsCan provide cost saving options to government

###ÿÿ#####ÿ□#ÿÿd#########d#########¢###Program offices should require the contractor to develop alternative approaches to delivering and/or accessing digital technical data. These alternatives should be complete with cost considerations. The government can provide itself an advantage by requesting alternative digital data strategies from the contractor through the ITO. Many cost saving options can be identified to program offices using this strategy.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######â###Drives delivery of items in Section L
(ITO)Describes how proposals will be evaluatedShould be composed by acquisition
teamTO-00-5-3 Appendix E, E-4: Evaluation criteria (RFP section M) must support
the SOO and ITO sections.
```

###ÿÿ#####ÿ#ÿÿd#########d#############MIL-HDBK-59B par 4.2.7 describes the basic requirements for developing RFP Section M. This section describes how the contractor's proposal regarding digital data delivery/access will be evaluated and provides an incentive for contractor delivery of ITO items in RFP Section L.s

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ÿÿP#########P#2###########Impact of contractor□s approach on life-cycle costsCAC
thoroughness and innovation Grasp of contractor/government digital data processes
Functional process improvements to be implemented by CALSContractor□s intent to
comply with RFP and delivery of functional data appropriatelyc

###ÿÿ#####ÿ□#ÿÿd#########d#########ß###General proposal evaluation criteria include impact of the contractor's approach on program life-cycle costs, CAC thoroughness and innovation, and grasp of the government's digital data management initiatives and processes.l

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##ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######$###Data integrity (coordinate with RFP
Section E)System administrative and security capabilitiesInterchange requirements
(i.e., speed, capacity)System configuration controls and proceduresProposed
transmission methodologyDatabase management and retrieval capability within DoDs
environment
```

###ÿÿ#####ÿ□#ÿÿd#########d#########»###CITIS evaluation criteria may include data integrity, system administrative and security capabilities, system configuration controls and procedures, and proposed transmission methodology.e

###ÿÿ#####ÿ#ÿÿd#########d#########>###Digital data acquisition Step 5 is conduct a source selection.

###ÿÿ#####ÿ#ÿÿd#########d#########î###What happens after the RFP is released?
The contractor proposal team will refer to the proposal evaluation criteria as the governing item to determine if they have the infrastructure and capabilities to handle the proposal rrequirements.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#########Reviews and analyzes RFP and GCO Governed by RFP evaluation criteriaAssembles contractor digital product data management teamProduces Proposal including CAC #

###ÿÿ#####ÿ□#ÿÿd#########d#########©###After the contractor reviews the RFP, with the GCO as attachment in Section J, the contractor can then develop the CAC as a direct response to the GCO. The GCO provides the contractor with a very detailed and clear picture of the requirements for the data product and he can respond effectively. The government gains the ability to compare proposals that are addressing a single, clear, and unambiguous set of requirements.#

###ÿÿ#####ÿ□#ÿÿd#########d#########O###The source selection process is made up of these three functional components. c

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÷¦ü¶  K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######ì###Assemble digital product data
acquisition representativesReview and judge proposals including CAC IAW RFP
evaluation criteriaKeep in mind the product data user before making a final
decisionAward the best CAC with the highest points
```

###ÿÿ#####ÿ#ÿÿd#########d#########%###The source selection process should involve those persons that understand digital data management as well as functional experts to judge the proposal against the evaluation criteria specified in Section M of the RFP. The most significant document to conduct this evaluation is the the CAC or the CALSIP. These documents will clearly indicate how well the contractor understands the governments requirements and how well they can satisfy these requirements. ..The highest amount of points should be awarded to the CAC that best addresses the GCO.#

###ÿÿ#####ÿ□#ÿÿd#########d#########O###Step 6 involves monitoring the contractor as digital product data is developed.#

###ÿÿ#####ÿ□#ÿÿd#########d#########N###DoDI 5000.2 is the governing document for the Acquisition Planning and Requirements Determination function. The inputs to this function incude assessment of the technology infrastructure and the CALS strategy. The output is the GCO for use as source data for the RFP. MIL-HDBK-59B provides guidance for development of the GCO and proposal evaluation critieria included in Section J and Section M of the RFP respectively. The RFP becomes available to the contractor. The contractor provides a proposal using the GCO as a guide and it is evaluated during.source selection. Once awarded, the contractor implements the Statement of Objectives and develops digital data according to the formats and standards listed in the GCO and in coorpaaeration with the other system engineering functions, to produce digital data usable on JCALS or JEDMICS.

###ÿÿ#####ÿ□#ÿÿd#########d#########□###Finally, Step 7 is to glean digital data acquisition pointers from those who have gone before you in acquiring digital product data.

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######B###Past Returns On Investment (ROI)
Digital Data Acquisition Pointers
```

###ÿÿ#####ÿ□#ÿÿd#########d#########t###Pointers to be gleaned from working from other SPOs. In this section will look at some ROI and acuisition pointers.

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      í#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########¦###*100% Correct Fault Isolation
(vs 42% with paper TI  )*35% Fewer Remove/Replace/Check     out Procedure Errors
*90% of Technicians Preferred     IETMS to Paper
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Ç#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###*Estimated Cost Avoidance
=$11.9M*Estimated Cost Avoidance =$16.8M*Estimated Cost Avoidance =$17.5M
*Estimated Cost Avoidance =$4.9M

###ÿ□#ÿÿd#########d#########9#□#######R
d#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###*100% Correct Fault Isolation   (vs
58% with paper TI)*24% Faster Troubleshooting than Paper*92% of Technicians
Preferred IETMS   to Paper

##########ÿ□#ÿÿd#########d#########□###This ROI information was collected from the DoD CALS office. B2 had its ITDS Integrated Technical Data System (ITDS) to create a capability for contractor and government to have on-line access for technical data The B2 program realized a cost avoidence of $100 million from paper deliverables.The F-14 demonstration shows via the use of IETMs in developTOMCAT...gains came in fault isolation. enabled user to have a thorough and accuract to 100% corrrect vs. 42 % with paper.Comanche..Army implemented CITIS concept...digitaized their CDRL operations and these are there associated cost avoidance areas. Navy□s done a lot with IETMs.v

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      ë#ÿÿ####ÿÿ####UÿF#ÿÿP#########P#2#######U###Reduced engineering cycle time
20-30% on Marine□s H-46D and E model helicopter concurrent engineering process
Reducing engineering data storage costs by $1.7M per year over non-digital storage
CITIS reduced Titan Missile□s TDY costs to review data by $350K first year
Reduction of JPATS SPO source selection personnel on a three-to-one ratio#
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ë#ÿÿ####ÿÿ####Uÿn#ÿÿK#########P#2#######æ###JCALS/JEDMICS implementation will save$3.5M/yr = ATOS elimination$1.5M/yr = G022 elimination$5.0M/yr = EDCARS eliminationReduction of paper-based TO: Storage costs = $5.9M/yrPrinting costs = $2.0M/yrMailing costs = $1.6M/yr

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#ÿÿP#########P#2###########Consult with AF PDSM Program Office early in RFP
developmentDiscuss digital data issues during guidance conferencesRequest
alternative digital data acquisition approaches in the RFP ITO Ensure government
infrastructure can support delivery and use of data #
```

###ÿÿ#####ÿ□#ÿÿd#########d#########E###As early as possible, involve the AF PDSM Program Office in your acquisition process to provide you with the latest information. Digital data issues should be discussed at guidance conferences. Direct alternaive approaches in the RFP. Make sure the data types you are receiveing can be accomadeated at the user□s facility.#

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      ß#############T#F###P#########P#2###########Network to obtain CALS lessons
learnedRequire the use of certified vendor products (i.e., SGML-S Parser)Work to
implement CALS before Milestone II for greatest ROIEnsure coordination with SPO
and participating agenciesTest digital data as early as possible#
```

###ÿÿ#####ÿ□#ÿÿd#########d#########E###As early as possible, involve the AF PDSM Program Office in your acquisition process to provide you with the latest information. Digital data issues should be discussed at guidance conferences. Direct alternaive approaches in the RFP. Make sure the data types you are receiveing can be accomadeated at the user□s facility.#

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K#ÿÿ####ÿÿ####UÿF#ÿÿP#########Z#2#######í###Step 1: Learn DoDs environmentStep 2:
Plan for acquisition Step 3: Determine requirementsStep 4: Produce a cohesive RFP
Step 5: Conduct a source selection Step 6: Understand the fielding of digital data
Step 7: Glean from experience#
```

###ÿÿ#####ÿ□#ÿÿd#########d#############First, we wanted to learn DoD□s approach in order to understand the framework underlying our current and future acquisition activities. Then we plan for the acquisition. Next, we ensure that we have an understanding of our digital data requirements and produce the GCO for use as source data in developing the RFP. We then monitor the development of the data products and test these products early in the implementation phase. Finally, throughout the entire process, consider acquiring the lessons learned by networking with your peers.

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#ÿÿ####ÿÿ#####ÿ#ÿÿd#########d#########8###AF PDSM Office
      IPDE/CALS TutorialATOS & JCALS                       TMSSEDCARS & JEDMICS
            TrainingTech Order Conversion            Technical AdviceDigital Data
Mgt                     IPDE/CALS LinksAF TO Practices & Procedures
      Fielding & Sustaining
                                       Digital TOs
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      ë#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########P#2#######R###Click to edit Master text styles
Second LevelThird LevelFourth LevelFifth Level